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## NTE5650 thru NTE5653 TRIAC – 100V<sub>RM</sub>, 2.5A

**Description:**

The NTE5650 through NTE5653 sensitive gate TRIACs are designed to be driven directly with IC and MOS devices. These devices features a void-free glass passivated chip and are hermetically sealed in TO-5 outline cans.

The NTE5650 through NTE5653 are bi-directional triode thyristors and may be switched from off-state to conduction for either polarity of applied voltage with positive or negative gate-trigger current and are designed for control applications in lighting, heating, cooling and static switching relays.

**Absolute Maximum Ratings:**

Repetitive Peak Off-State Voltage ( $T_J = +90^\circ\text{C}$ , Gate Open, Note 1), $V_{DROM}$	
NTE5650 .....	100V
NTE5651 .....	200V
NTE5652 .....	400V
NTE5653 .....	600V
RMS On-State Current ( $T_C = +75^\circ\text{C}$ and Conduction Angle of $360^\circ$ ), $I_{T(RMS)}$ .....	
	3A
Peak Surge (Non-Repetitive) On-State Current (One-Cycle at 50Hz or 60Hz), $I_{TSM}$ .....	
	30A
Peak Gate-Trigger Current (3 $\mu\text{sec}$ , Max.), $I_{GTM}$ .....	
	1A
Peak Gate-Power Dissipation ( $I_{GT} \leq I_{GTM}$ for 3 $\mu\text{sec}$ . Max.), $P_{GM}$ .....	
	20W
Average Gate-Power Dissipation, $P_{G(AV)}$ .....	
	0.2W
Operating Temperature Range ( $T_C$ ), $T_{opr}$ .....	
	$-40^\circ$ to $+90^\circ\text{C}$
Storage Temperature Range, $T_{stg}$ .....	
	$-40^\circ$ to $+150^\circ\text{C}$
Typical Thermal Resistance, Junction-to-Case, $R_{thJC}$ .....	
	$4^\circ\text{C/W}$

Note 1. All values apply in either direction.

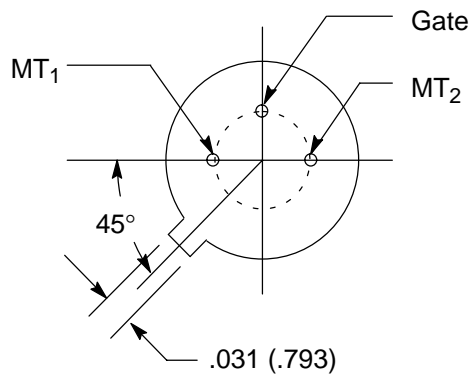
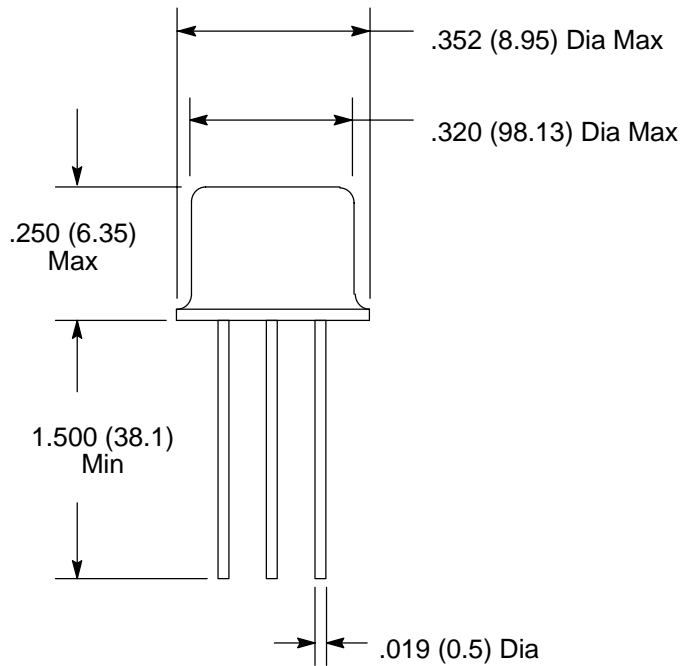
**Electrical Characteristics:** (At Maximum Ratings & Specified Case Temperature)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
Peak Off-State Current	$I_{DROM}$	$T_J = +90^\circ\text{C}$ , $V_{DROM} = \text{Max Rating}$ , Gate Open, Note 1	-	-	0.75	mA
Maximum On-State Voltage	$V_{TM}$	$T_C = +25^\circ\text{C}$ , $i_T = 5\text{A}$ (Peak), Note 1	-	-	1.85	V
DC Holding Current	$I_{HO}$	$T_C = +25^\circ\text{C}$ , Gate Open	-	-	5	mA
Critical Rate-of-Rise of Off-State Voltage	Critical $dv/dt$	$T_C = +90^\circ\text{C}$ , $v_D = V_{DROM}$ , Gate Open, Note 1	-	3	-	V/ $\mu\text{s}$
DC Gate-Trigger Current $MT_2$ (+) Gate (+), $MT_2$ (-) Gate (-) $MT_2$ (+) Gate (-), $MT_2$ (-) Gate (+)	$I_{GT}$	$T_C = +25^\circ\text{C}$ , $v_D = 6\text{V}$ , $R_L = 39\Omega$	-	-	3	mA

Note 1. All values apply in either direction.

**Electrical Characteristics (Cont'd):** (At Maximum Ratings & Specified Case Temperature)

Parameter	Symbol	Test Conditions	Min	Typ	Max	Unit
DC Gate Trigger Voltage	$V_{GT}$	$T_C = +25^\circ\text{C}$ , $v_D = 6\text{V}$ , $R_L = 39\Omega$	-	-	2.2	V
Gate-Controlled Turn-On Time	$t_{gt}$	$T_C = +25^\circ\text{C}$ , $v_D = V_{DROM}$ , $I_{GT} = 80\text{mA}$ , $t_r = 0.1\mu\text{s}$ , $i_T = 10\text{A}$ (Peak)	-	2.2	-	$\mu\text{s}$
Fusing Current (For TRIAC Protection)	$I^2t$	$T = 1.25$ to $10\text{ms}$	-	-	3	$\text{A}^2\text{s}$



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